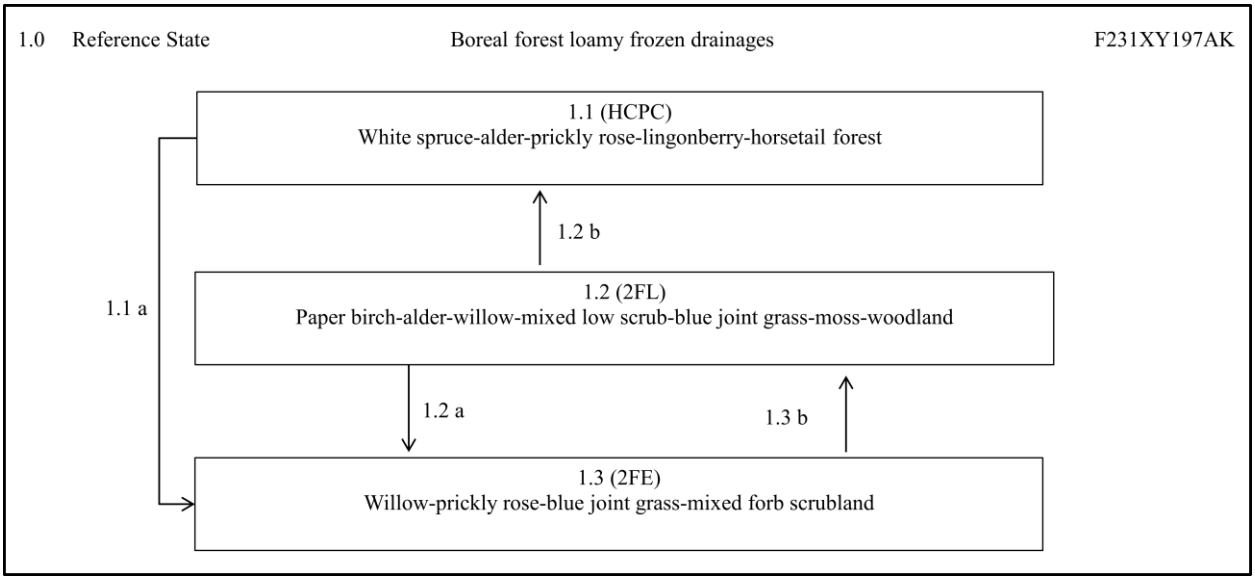
Ecological Site Description ID:	F231XY197AK

Ecological Dynamics of the Site:

This boreal ecological site occurred in lowland drainages located on floodplain terraces. These loamy textured soils had permafrost, were saturated at depth, and generally occurred on low slopes (i.e. < 10% slopes). For community phase 1.1, soils were classified as aquorthels and were composed of organic material over loamy alluvium. The climax phase community was characterized as a white spruce forest with dense shrub understory growing directly adjacent to flowing water. As drainages lacked unvegetated bars, flooding was not included as a disturbance regime.

Fire was an observed disturbance regime resulting in 3 phases. No alternate states were observed. Fire is a natural and typically unmanaged disturbance regime. The typical fire return interval for coniferous forests of interior Alaska is approximately 100 years. For this ecological site, high-severity fire events were considered more typical then low-severity fire events. Low-severity and high-severity fire events appear to cause differences in the depth of organic material on the soil surface, presence and/or depth of permafrost, present vegetation, and potential vegetation.

State and Transition Diagram:



State ID Number:	1	State Name:	Reference

State Narrative:	Phases within the reference state were grouped on the structure and dominance of deciduous and coniferous trees and shrubs which was believed to directly relate to time since last fire event and severity of burn. In a high-severity fire, large proportions of the organic mat are consumed and mineral soils will typically be exposed. Permafrost often drops out of the soil profile and the sites become drier. While many pre-fire species likely regenerate, conditions are suitable for the establishment and growth of species with wind-blown seed (e.g. paper birch, fireweed, willow). With the absence of fire, early fire sere communities associated with this disturbance regime are thought to

	progress to community phase 1.2. Tall trees are defined as trees growing >40’ in height, medium trees are defined as growing 15-40’ in height, while stunted and regenerative trees are defined as growing less than 15’ in height. Tall shrubs are defined to grow greater than 10’ in height, medium shrubs are defined to grow 3-10’ in height, low shrubs are defined to grow 8” – 3’ in height, and dwarf shrubs are defined to grow less than 8” in height.
Photo 1.1	

Community Phase Number:	1.1	Community Phase Name:	White Spruce-Alder-Prickly Rose-Lingonberry-Horsetail Forest

Community Phase Narrative:

The majority of tree cover occurred in the tall tree stratum (total mature tree cover ~40%). While *Picea glauca* was the dominant tree species, *Betula neoalaskana* and *Populus balsamifera* were also observed. The majority of shrub cover occurred in the tall and low shrub stratums (total shrub cover was ~60%). Common shrubs observed included *Alnus incana*, *Rosa acicularis*, and *Vaccinium vitis-idaea*. Forbs (~35% cover) were more abundant then graminoids in sampled plot (~15% cover). Common forbs and graminoids observed included *Equisetum arvense, Geocaulon lividum, and Arctagrostis latifolia. Lichens were not observed and moss had minimal cover (~15%).* *T*his community phase had 1 observation.

Community Pathways	
Pathway Number	Pathway Name & Description

1.1 a	Fire. For this phase, white spruce was the dominant tree species. For this ecological site, this phase had the longest fire return interval.

Photo 1.2			
Community Phase Number:	1.2	Community Phase Name:	Paper Birch-Alder-Willow-Mixed Low Scrub-Blue Joint Grass-Moss-Woodland
Community Phase Narrative:			
The majority of tree cover occurred in the medium tree stratum (total mature tree cover ~15%). While *Betula neoalaskana* was the dominant tree species, *Picea mariana* was also observed. The majority of shrub cover occurred in the tall and low shrub stratums (total shrub cover was ~60%). Common shrubs observed included *Alnus incana*, *Salix sp.*, and *Rosa acicularis*. Graminoids were abundant (~45% cover) and the most common species was *Calamagrostis canadensis*. Forbs and lichens were minor vegetative components. Moss was commonly observed (~45% cover). This community phase had 3 observations.			

Community Pathways	
Pathway Number	Pathway Name & Description
1.2 a	Fire. For this phase, paper birch was the dominant tree species.
1.2 b	Normal time and growth without fire. As a result, paper birch will eventually be replaced by white spruce that would result in a community assemblage

	resembling community phase 1.1. The fire return interval was presumed to be shorter then community phase 1.1 but longer than community phase 1.3.

Photo 1.3			
Community Phase Number:	1.3	Community Phase Name:	Willow-Blue Joint Grass-Mixed Forb Scrubland
Community Phase Narrative:			
Trees that were charred and dead were commonly observed. Tree cover was minimal (~2% cover) and the only tree species observed was *Betula neoalaskana*. The majority of shrub cover occurred in the medium and low stratums (total shrub cover was 20%). The most common shrubs were an assortment of *Salix sp*. Graminoids (~45% cover) and forbs (~20% cover) were abundant. The most common graminoid was *Calamagrostis canadensis*, while the most common forbs were *Chamerion angustifolium* and *Equisetum arvense*. Moss and lichen were minor vegetative components. This community phase had 2 observations.			

Community Pathways	
Pathway Number	Pathway Name & Description
1.3 a	Normal time and growth without fire. Graminoid and forb cover will decrease. Paper birch seedlings will mature and overall cover will increase resulting in a community that resembles community phase 1.2. While this phase may burn, the resulting community would likely resemble community phase 1.3.